डा० मुरली मनोहर जोशी : मैं प्रधान मंत्री जी से अनुरोध करूंगा.... (व्यवधान)

श्री मोहम्मद अफजल उर्फ मीम अफजल : जवाब दीजिए न ।

السید محمد افضل عرف م - افضل : جواب دیجئے نہ ۔

श्री हंसराज भारद्वाज : जवाब दे रहा हूं ।... (व्यवधान) मैं जवाब दूंगा ।... (व्यवधान) स्वामी जी के जहाज में कौन बैठा था ?... (व्यवधान)

डा० मुरली मनोहर जोशी : महोदया, मैं प्रधान मंत्री जी का ध्यान इस ओर आकृष्ट कर रहा हूं ।... (व्यवधान)...

SHRI S. JAIPAL REDDY: Madam,..

THE DEPUTY CHAIRMAN: Mr. Jaipal Reddy, please sit down.

SHRI S. JAIPAL REDDY: He is speaking la a lawless manner. He is throwing a challenge. *(Intemiptions).* You pull up ,the Minister. He is throwing a challenge to all the Janata Dal MPs. We accept the challenge *{Interrupt ions)* _ Let there be an enquiry. We are prepared to accept the challenge. *(Intemiptions).*

THE DEPUTY CHAIRMAN: Question Hour is over,

WRITTEN ANSWERS TO QUESTIONS

Nuclear Technology

*864. MISS SAROJ KHAPARDE. Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that India has become self-reliant in Nuclear Technology; and

(b) if so, the details thereof?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI BHUVNESH CHATURVEDI): (a) and (b) India is one of the few countries in the world to have achieved comprehensive capability in the entire nuclear-fuel cycle. Starting from prospecting and mining of nuclear materials, fuel and clad fabrication, our engineers and scientists have achieved success in the design, construction and operation of nuclear reactors besides nuclear fuel reprocessing and waste management. Over the years, we have also developed self-reliance in heavy water technology, reactor control systems, radiation monitoring and radiation safety equipment, as well as in reactor repair and maintenance technology A variety of radio-isotopes are produced indgenously in our research and power reactors and are widely used in agriculture, industry and medicine. In agriculture, the Bhabha Atomic Research Centre has produced improved mutants of several crop plants. Radio-isotopes have helped in the study of fertilizer uptake and economising in the use of expensive fertilizers. Food irradiation technology, which is internationally accepted. has been promoted for the preservation of certain food products and has enhanced export capability. In industry, gamma ray radiography has been used extensively for locating flaws in industrial pressure vessels^ process pipes and other critical components. Nucleonic guages have been used for the control of liquid levels in closed containers and fpr the measurement of thickness of pipes, foils and sheet materials. Radio-isotopes have been effectively used in locating minute leaks in underground gas oil pipelines without any need for excavation, see-page in dams and the silt movetnent at harbour sites have been studied using radioisotopes. In medicine, radio-isotopes are bieng, used diagnostid and therapeutic purposes in 300 medical institutions and 80 hospitals in India. Similarly, lasers for use in medicine and industry have been developed. A recent breakthrough is the use of radioisotopes for the hygieni-

sation of municipal sewarage sludge in. research irradiator at Baroda for production of bacteria free organic fertilizer.